TOSHIBA

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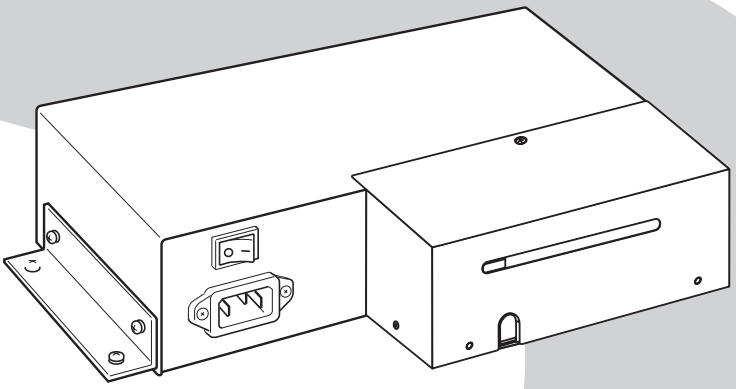
SERVICE MANUAL

WEB BASED CONTROLLER

Model name:

BMS-WB2561PWE (Web Server/Gateway)
BMS-WB01GTE (Master Server)



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SAFETY PRECAUTIONS

Important safety-related information is described on the product and in this Service Guide.
Read the following description on labels and symbols carefully and follow their directions.

[Explanation of labels]

Label	Explanation
⚠ DANGER	Indicates that the repair engineer and other third-party individuals in the vicinity may be exposed to immediate risk of death or serious injury if operation is not performed correctly.
⚠ WARNING	Indicates that the repair engineer and other third-party individuals in the vicinity may be exposed to a risk of death or serious injury if operation is not performed correctly.
⚠ CAUTION	Indicates that the repair engineer and other third-party individuals in the vicinity may be exposed to a risk of injury or that property damage (*) may result if operation is not performed correctly or from failure of product after operation.

(*): Property damage means expanded damages to assets, furniture, livestock and/or pets.

[Explanation of symbols]

Symbol	Explanation
	Indicates prohibited activity Specific prohibited actions are described in statements near the symbol.
	Indicates enforced action Specific enforced actions are described in statements near the symbol.
	Indicates caution (includes danger alert and warning) Specific content of caution is indicated in a picture or statement near the symbol.

⚠ DANGER

 Turn off breaker	**Turn off breaker before performing work.** Otherwise, one may receive electric shock from the high-voltage electricity, resulting in death or injury.
 Prohibition	**Do not turn on the breaker when the cover of the unit is removed.** Otherwise, one may receive electric shock from the high-voltage electricity, resulting in death or injury.

⚠ WARNING

 Check for ground wire	**Before fault diagnosis or beginning repair work, make sure that the ground wire is connected to the ground terminal of the unit.** If not, ground leakage may result in electric shock hazard.
 No alteration	**Do not alter the product.** Components of the unit should also not be taken apart or altered. Otherwise, it may result in fire, electric shock or injury.
 Use designated parts	**Use designated parts for replacement.** Using parts other than those designated may cause fire or electric shock.

⚠ WARNING

Restricted area	**Do not allow unauthorized personnel other than repair engineers to enter areas where fault diagnosis and repair work is conducted.** Unauthorized persons may suffer injury from tools and disassembled parts.
Insulation	**Connect lead wires with crimping terminals and turn the closed end upwards to avoid exposure to water.** Failure to perform this post-connection treatment may cause disasters, such as electricity leakage and fire, on the client's premises.
Assembly wiring caution	**After repair, ensure that the assembly of disassembled parts and the connection and wiring of removed wires are completed so as to restore them to their former state. Be careful not to have the internal wires caught in the cover or other closures.** A defect in assembly or wire connection may cause disasters in the client premise, such as electricity leakage and fire.
Insulation check	**After repair, check for insulation between the charged part and non-charged metal part (ground terminal) using an insulation resistance tester (500V) and ensure at least 2MΩ resistance.** If the insulation resistance value is low, it indicates the risk of disasters, such as electricity leakage and electric shock, on the client's premises.
Electric shock caution	**In case of performing circuit inspection while the circuit is connected to a power source (if such condition is necessary), use rubber gloves and other measures to prevent contact with the charged part.** Otherwise, one will risk electric shock from contacting the charged part.
Check after repair	**Upon completion of repair, ensure that there are no abnormalities.** Risks of fire, electric shock or injury may be prevented by inspection. Turn off the breaker before performing inspection.
	Test run the system after repair and make sure that there are no abnormalities including smoke. Risks of fire and electric shock may be prevented by inspection.
Repair and Reinstall	**Repair and reinstallation must be performed by qualified professional.**

1 PRODUCT OVERVIEW

This product controls the air conditioning equipment in the building centrally from the browser of a client PC connected to the network, to which the Master Server or Web Server is connected.
Up to 2048 indoor units can be connected.
Two systems are available: Master Server System and Web Server System.
The number of connected air conditioning products determines which system is to be used.

Master Server System :A Gateway is needed if there are 257 or more indoor units.
The air conditioners are controlled by one Master Server and a maximum of eight Gateways.
Web Server System :One Web Server controls the air conditioners if the number of indoor units is less than 257.

NOTE

The Web Server and Gateway are the same product (BMS-WB2561PWE). In this document, when BMS-WB2561PWE is used with the Master Server System, it is referred to as “Gateway” and when it is used in a Web Server System, it is called “Web Server.” What BMS-WB2561PWE is called depends on the function of the product in each system.

1-1. Main Functions

Monitoring/Controlling Air Conditioners

Enables users to monitor the operating status, setup status and error status of all their air conditioners, to start and stop all theirs air conditioners, and change the setup details of all their air conditioners.
The air conditioners are named and categorized in a hierarchy by each floor, tenant, area, and air conditioning system. When controlling the air conditioners, they can be set in batch by each floor, tenant or area, or they can be set individually for each air conditioning system.The air conditioners can be controlled by linking to the locking signals and the fire alarm signals.

Scheduled Operation for Air Conditioners

Operation of all air conditioners can be scheduled. Up to 10 setups can be programmed for each day, and it is possible to prevent users from forgetting to switch off by setting a stop schedule. During scheduled operation, users can set the Power status (On/Off), Operation mode, Temperature setup, Remote control operation restricted/ allowed and Return back. In the master schedule, users can set weekly schedules and five types of special day schedules, as well as monthly schedules for 12 months.

Distributing Power used by Air Conditioners

It is possible to distribute the power to be used for each air conditioner. In the billing schedule setup, it is possible to monitor the operation time period and power distribution during both working hours and non-working hours separately. Note that power distribution requires the Energy Monitoring Relay Interface (sold separately).

Warning List

Displays all current warnings in a list. Warning history is also displayed in a list.
Occurrence of an alarm is notified by E-mail.

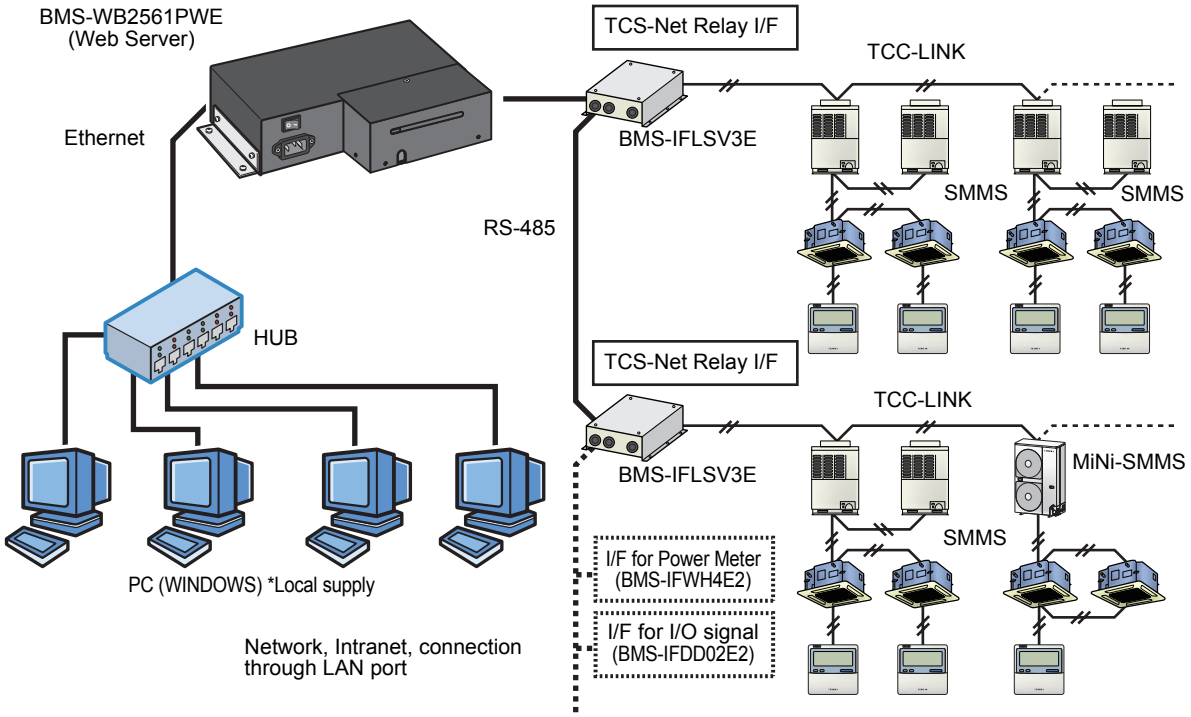
Summer Time

Summer time can be set.

2 SYSTEM CONFIGURATION

2-1. Web Server System (In case of connecting 256 FCUs or less)

System diagram



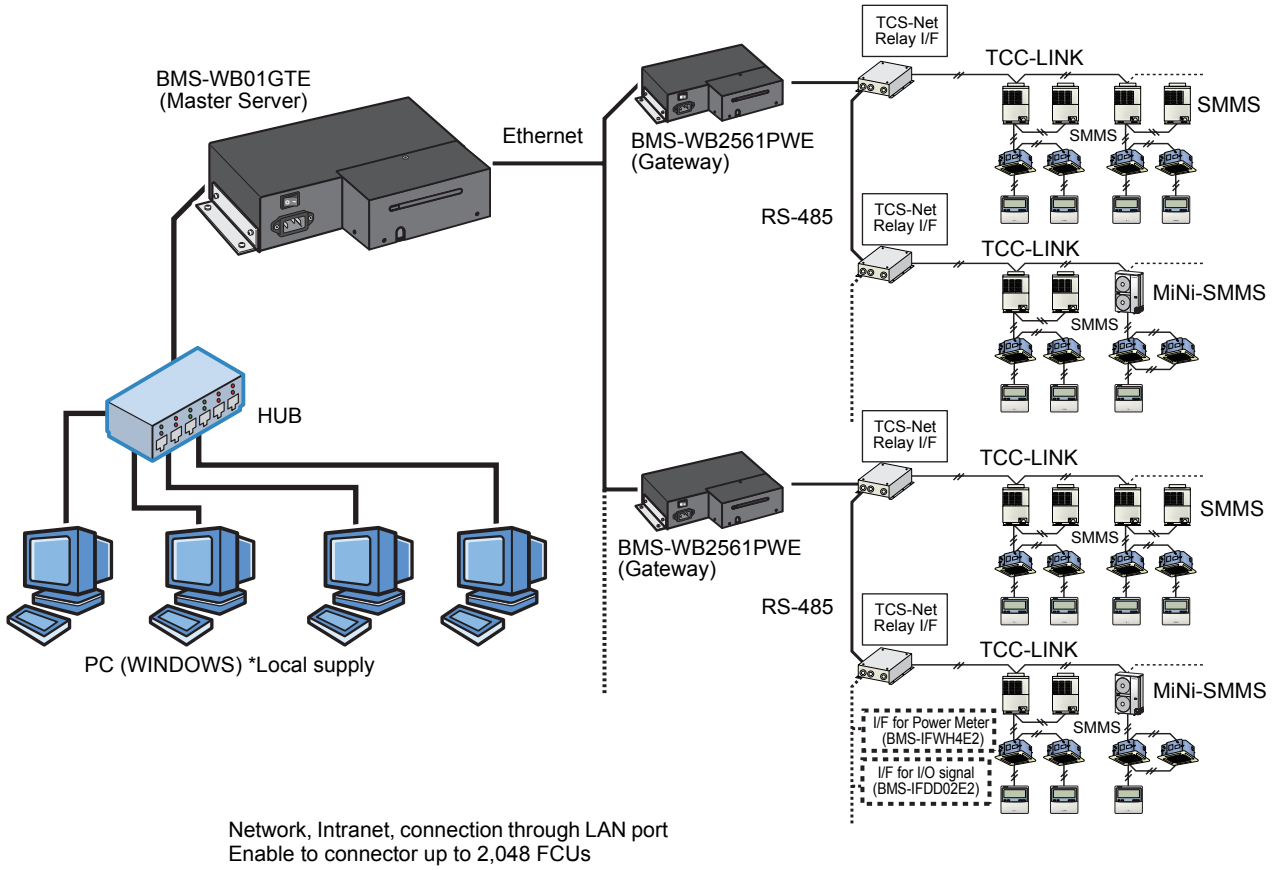
System product configuration table

Product name	Web Server System	
	Model name	Max. connectable units
Web Server	BMS-WB2561PWE	1
Indoor Unit	(TCC-LINK integrated model)	Max. 256
TCS-NET Relay Interface	BMS-IFLSV3E	Max. 8
Energy Monitoring Relay Interface	BMS-IFWH4E2	Max. 4
Digital Input/Output Relay Interface	BMS-IFDD02E2	Max. 4
Central Remote Controller	TCB-SC642TLE BMS-CM1280TLE	Max. 10

Client PC specification	OS	Windows XP,Vista
	Browser	Internet Explorer 6.0 or 7.0
	Display	1,024 X 768 more

2-2. Master Server System (In case of connecting 257 FCUs or more)

System diagram



Network, Intranet, connection through LAN port
Enable to connector up to 2,048 FCUs

System product configuration table

Product name	Master Server System		
	Model name	Max. connectable units	Notes
Master Server	BMS- WB01GTE	1	
Gateway	BMS- WB2561PWE	Max. 8	
Indoor Unit	(TCC-LINK integrated model)	Max. 2048	Max. 256 units per Gateway
TCS-NET Relay Interface	BMS-IFLSV3E	Max. 64	Max. 8 units per Gateway
Energy Monitoring Relay Interface	BMS-IFWH4E2	Max. 32	Max. 4 units per Gateway
Digital Input/Output Relay Interface	BMS-IFDD02E2	Max. 32	Max. 4 units per Gateway
Central Remote Controller	TCB-SC642TLE BMS-CM1280TLE	Max. 80	Max. 10 units per Gateway

Client PC specification	OS	Windows XP,Vista
	Browser	Internet Explorer 6.0 or 7.0
	Display	1,024 X 768 more

2-3. Communication Specification

TCC-LINK	Topology	Bus
	Signal wire type	2-core shield wire
	Wire size, length	In case of 1.25mm^2 (AWG16): Max. 1,000m (Total length) In case of 2.00mm^2 (AWG14): Max. 2,000m
	Number of nodes	Max. 100 (Sum of indoor units, outdoor units, central remote controllers, and interfaces)
	Transmission rate	9.6kbps
	Polarity	No

RS-485	Topology	Bus
	Signal wire type	2-core shield wire
	Length	Max. 500m (Total length)
	Number of nodes	Max. 32
	Transmission rate	115.2kbps
	Polarity	Yes

Ethernet	Network interface	10BASE-T/100BASE-TX (Auto-sensing)
	Transmission rate	10M bps (10BASE-T) 100M bps (100BASE-TX)
	Transmission media	In case of 10BASE-T: Category 3 or Category 5 In case of 100BASE-TX: Category 5 (*)
	Straight/Crossover	Use a straight cable or crossover cable depending on use.
	Length	Max. segment length: 100m
	Connection	RJ-45 connector

(*) LAN cable: Unshielded twisted pair (UTP)

3 LIST OF FUNCTIONS

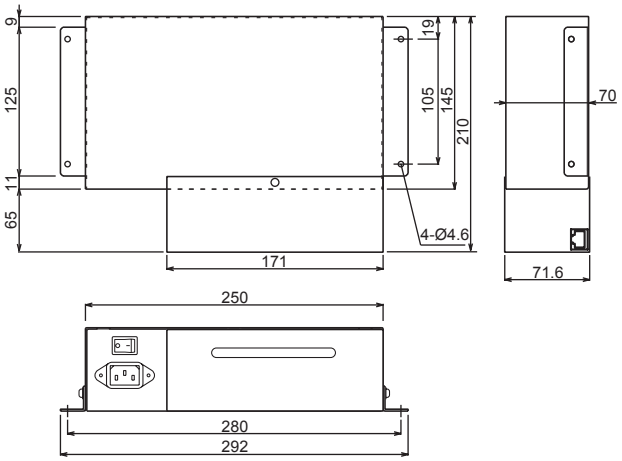
Function		Details
User account	Number of user registrations	256
	Type of user account	Administrator Power user Guest
Air conditioner category	Category structure	3 levels Level names (“Floor”, “Tenant”, “Area”) can be changed
Monitoring screen format	Monitoring screen	Icon screen; List screen
Monitoring air conditioner status	Start/Stop	✓
	Operation mode	✓
	Set temperature	✓
	Fan speed	✓
	Louver	✓
	Remote control prohibition / permission	✓
	Warning	✓
	Filter sign	✓
	Room temperature	✓
	Return back	✓
Controlling air conditioner	Start/Stop	✓
	Operation mode	✓
	Set temperature	✓
	Fan speed	✓
	Louver	✓ SWING /NO SWING
	Remote control prohibition / permission	✓
	Filter sign reset	✓
	Return back	✓
Operation schedule	Number of registrations	Equivalent to the number of indoor units
	Settable period	7 days, Up to 1 week later including current date
	Number of set points per day	10 settings
	Interval of set point	1 minute
	Settable parameters	Start/Stop Operation mode Set temperature Remote control prohibition / permission Return back

Master schedule	Number of registrations	256
	Settable period	Up to 12 months later including current month
	Number of set points per day	10 settings
	Interval of set point	1 minute
	Number of days assigned special day schedule	45 days per a special day schedule
	Settable parameters	Start/Stop Operation mode Set temperature Remote control prohibition Return back
	Weekly schedule pattern	By day schedule: 7 patterns, Monday through Sunday
	Special day schedule pattern	By special day schedule: 5 patterns
	Schedule assigning unit	By indoor unit
Billing schedule	Number of registrations	128
	Singularity settable period	Up to 12 months later including current month
	Number of set points per day	10 settings
	Interval of set point	1 minute
	Number of days assigned special day schedule	45 days per a special day schedule
	Settable parameters	Working hours/Non-working hours
	Number of schedule patterns	By day schedule: 7 patterns, Monday through Sunday By singularity schedule: 5 patterns
	Schedule assigning unit	By indoor unit
Warning display	Number of cases	4096
	Date/Time of warning	✓
	Warning code	✓
	Warning details	✓
Warning history display	Number of cases	4096
	Date/Time of warning	✓
	Date/Time of recovery	✓
	Warning code	✓
	Warning details	✓
Air conditioner communication error display		✓
Alarm E-mail		✓
	Number of recipient registration	8
	Sending warning details	Communication error (system error) and air conditioner warning

Operation history		✓ (Operation from client PC is recorded)
	Number of cases recordable	200
	Air conditioner operation	–
	Schedule setting	✓
	History clear	✓
	Account setting	✓
	Alarm E-mail setting	✓
	Time setting	✓
	Automatic meter reading setting	✓
	Manual meter reading operation	✓
	Operation mode restriction setting	✓
	Setting from system setting screen	✓
	User logon/logoff	✓
	Scheduler operation	–
	Air conditioner status change	–
Power distribution		✓
	Data keeping period	Daily report file: Stored for 3 months Monthly report file: Stored for 3 months Files that exceeded their keeping period are automatically deleted.
	Automatic meter reading	✓
	Manual meter reading	✓
Centigrade/Fahrenheit Temperature display switching		✓
Set temperature Unit of 1°C or 0.5°C switching		✓
Return back		✓ (Only settable on scheduler)
Summer time		✓ Summer time enable/disable setting Shift time: 1 hour fixed Setting by month/week (Xth week + final week)/day/hour/minute Default setting by selecting country (Region) is not supported.
Control by linking to locking signal		✓
Control by linking to fire alarm signal		✓
Operation mode restriction		✓
Time setting		✓

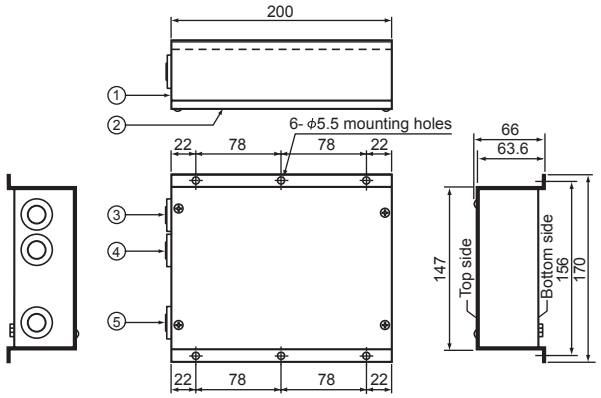
4 PRODUCT SPECIFICATION

BMS-WB01GTE • BMS-WB2561PWE (Master Server, Web Server / Gateway)



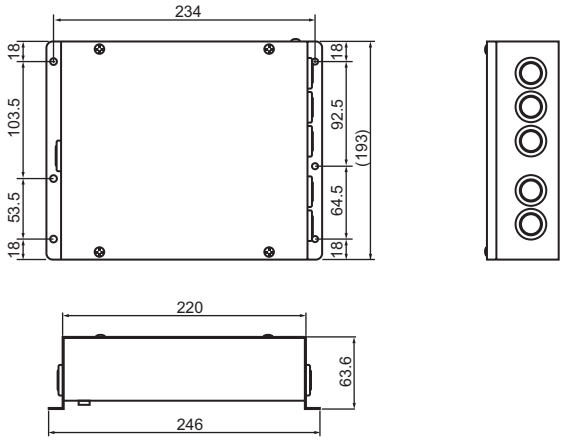
Power Supply	220-240 VAC 50/60 Hz
Input Current	0.2 A
Operating temperature/humidity	0 to 40 °C, 10 to 90 %RH (no condensation)
Storage temperature	-20 to 60 °C
Dimension	250 (W) × 71.6 (H) × 210 (D) mm (292 (W) including the fixing metal plate)
Mass	2.2 kg

BMS-IFLSV3E (TCS-NET Relay Interface)



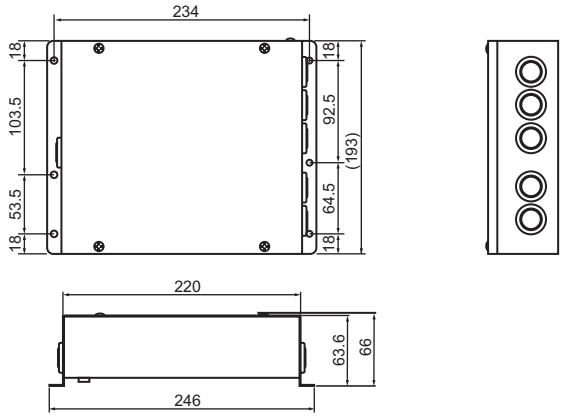
Power supply	220 - 240 VAC, 50/60 Hz
Power consumption	2.4 W
Operating temperature/humidity	0 to 40 °C, 10 to 90% RH (no condensation)
Storage temperature	-20 to +60 °C
Dimensions	66 (H) x 170 (W) x 200 (D) mm
Mass	1 kg

BMS-IFWH4E2 (Energy Monitoring Relay Interface)



Power supply		220 - 240 V, AC 50/60 Hz
Power consumption		2.8 W
Operating temperature/ humidity		0 to 40 °C, 10 to 90% RH (no condensation)
Storage temperature		-20 to +60 °C
Dimensions		66(H) x 193(W) x 246(D) mm
Mass		1.65 kg
Power supply		220 - 240 V, AC 50/60 Hz
Power meter input	Power meter input	Photo-coupler insulation
	Input points	8 points
	Input registance	9 k ohm
	Input "ON" current	1 mA
	Input pulse condition	50 m - 1000 m sec

BMS-IFDD02E2 (Digital Input / Output Relay Interface)



Power supply		220 - 240 V, AC 50/60 Hz
Power consumption		6.5 W
Operating temperature/humidity		0 to 40 °C, 10 to 90% RH
Storage temperature		-20 to +60 °C
Dimensions		66(H) x 193(W) x 246(D) mm
Mass		1.65 kg
Digital input	Input type	Photo-coupler insulation
	Input points	8 points
	Input registance	9 k ohm
	Input "ON" current	1 mA
Digital output	Output type	Open collector
	Output points	4 points
	Output current	Max. 35 mA (per point)
	Output voltage	Less than DC 24V
External power supply for Input/Output		DC 12 V, 120 mA

5 INSTALLATION

5-1. Installation Place

REQUIREMENT

Do not install the unit in any of the following places.

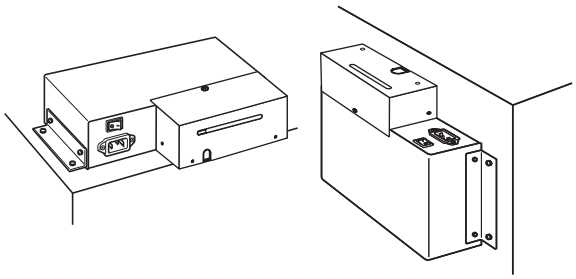
- Humid or wet place
- Dusty place
- Place exposed to direct sunlight
- Place where there is a TV set or radio within one meter
- Place exposed to rain (outdoors, under eaves, etc.)

Disconnect the appliance from the main power supply. Connect this appliance to the main power supply by a circuit breaker or a switch with a contact separation of at least 3 mm.
Make sure that the outlet is earthed.

BMS-WB01GTE・BMS-WB2561PWE (Master Server, Web Server / Gateway)

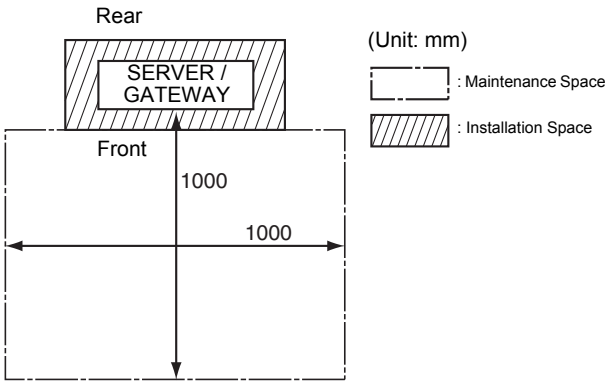
Installation Method and Orientation

There are two installation methods for this server as shown below: surface mount and wall mounts.



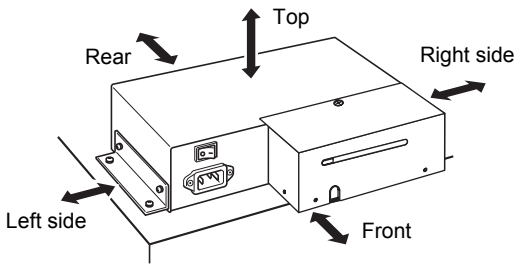
Maintenance Space

Maintenance space is required for installation and maintenance.



Installation Space

The values in the table are required for installation space in each direction. Select an installation place that allows good air ventilation.



(unit: mm)

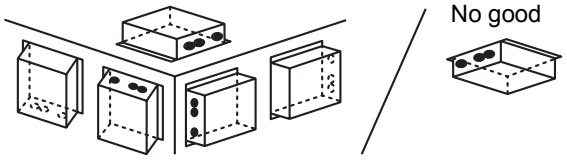
Item	Direction	Surface mount	Wall mount
Installation space	Top	100	100
	Bottom	0	0
	Front	100	100
	Rear	Location adjacent to wall permitted (*1)	
	Right side	100	100
	Left side	100	100

(*1) "Location adjacent to wall permitted" means that the unit can be installed close to the wall on that side.

BMS-IFLSV3E (TCS-NET Relay Interface)

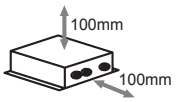
Installation Method and Orientation

There are five installation methods for this relay interface as shown below: surface mount and wall mounts.



Installation Space and Maintenance Space

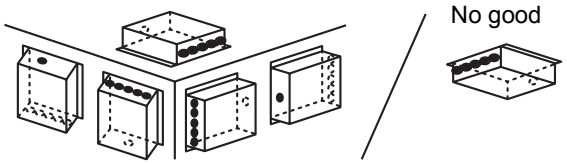
A side space for connecting through cable inlets and an upper space for maintenance must be reserved before installation. The other sides can be adjacent to surrounding objects.



BMS-IFWH4E2 • BMS-IFDD02E2 (Energy Monitoring Relay Interface, Digital Input / Output Relay Interface)

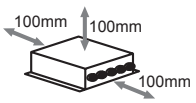
Installation Method and Orientation

There are five installation methods for this relay interface as shown below: surface mount and wall mounts.



Installation Space and Maintenance Space

A side space for connecting through cable inlets and an upper space for maintenance must be reserved before installation. The other sides can be adjacent to surrounding objects.



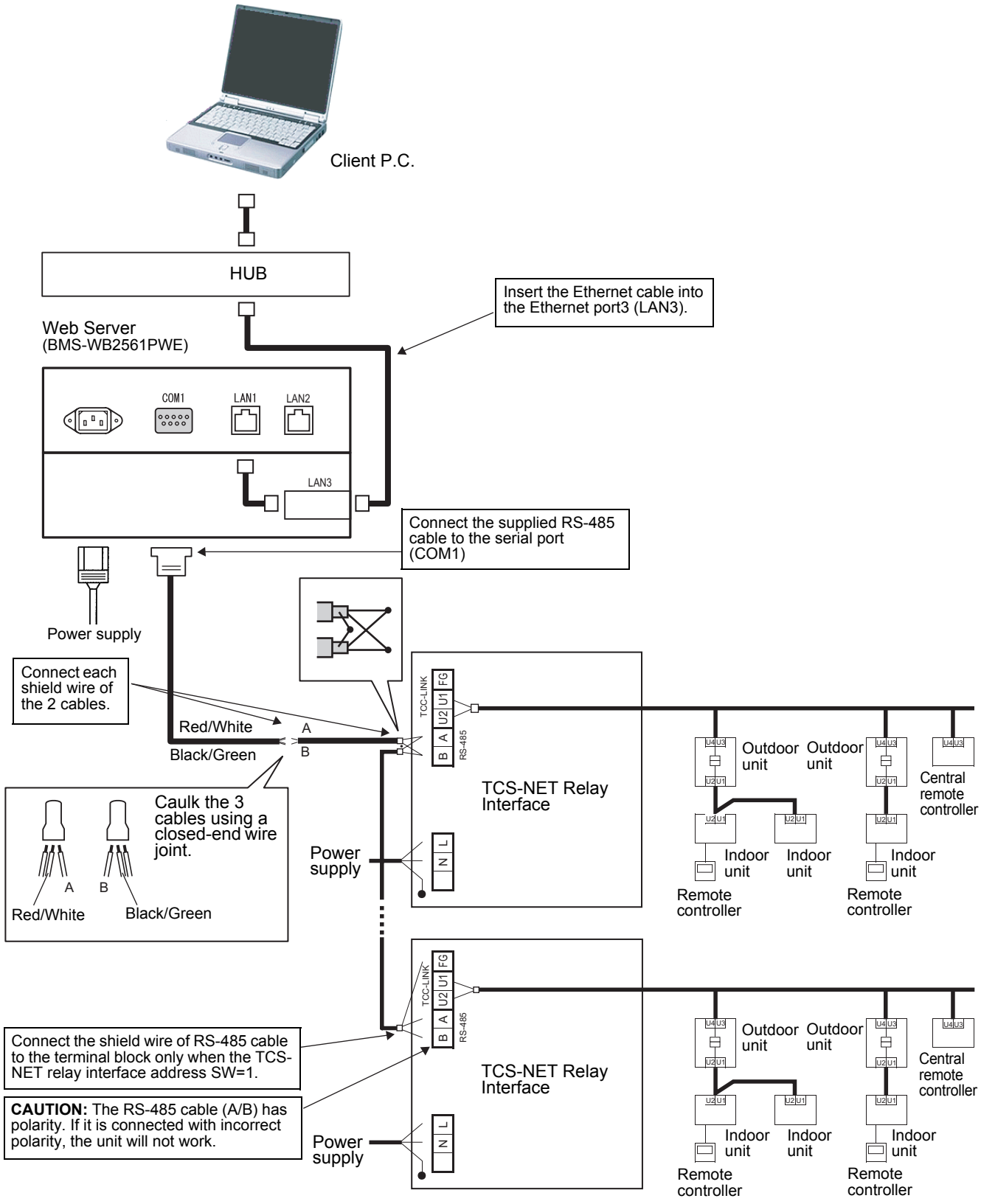
5-2. Cables to Use

Use the following cables:

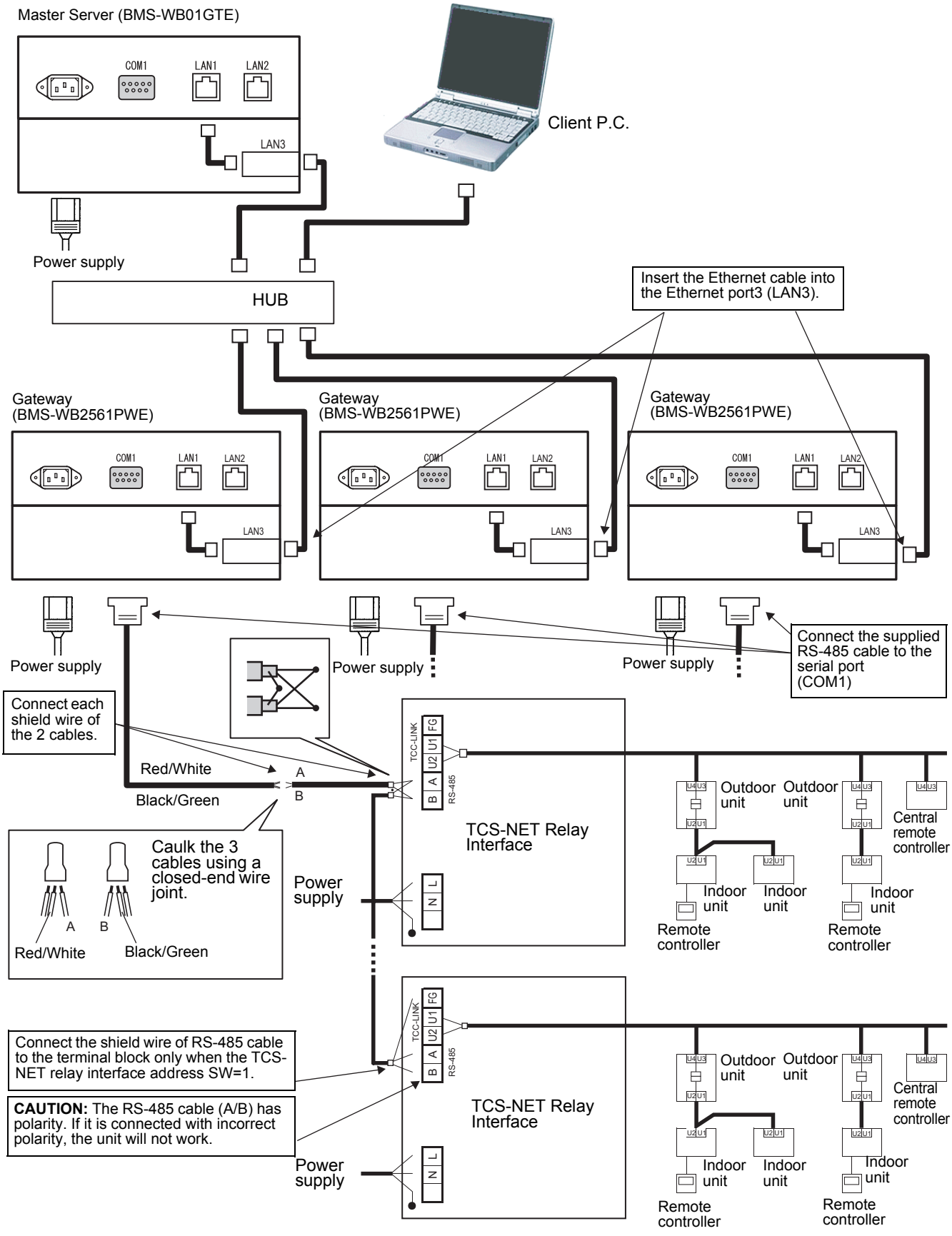
Product name	Cable		
BMS-WB01GTE BMS-WB2561PWE	For power	Use a three core power cord applicable to the standard of the country.	
	For Ethernet	Type	UTP Category 5
		Length	Max. segment length: 100m
	For RS-485	Use the 9-pin D-sub connector cable provided with the product	
BMS-IFLSV3E	For TCC-LINK	Type	2-core shield wires
		Wire size	1.25 mm^2, 1000m max. 2.00 mm^2, 2000m max. (total length including air conditioner area)
		Length	
	For RS-485	Type	2-core shield wires
		Wire size	1.25 mm^2, 500m max.(total length)
		Length	
	For power	Type	H07 RN-F or 245IEC66
		Wire size	0.75 mm^2, 50m max.
BMS-IFWH4E2	For RS-485	Type	2-core shield wires
		Wire size	1.25 mm^2, 500m max. (total length)
		Length	
	For connection to power meter	Type	2-core wire, 0.3mm^2, 100m max.
		Wire size	
		Length	
	For power	Type	H07 RN-F or 245IEC66
		Wire size	0.75 mm^2, 50m max.
BMS-IFDD02E2	For RS-485	Type	2-core wire, 0.3mm^2, 100m max.
		Wire size	1.25 mm^2, 500m max. (total length)
		Length	
	For digital Input/Output connection	Type	2-core wire, 0.3mm^2, 100m max.
		Wire size	
		Length	
	For power	Type	H07 RN-F or 245IEC66
		Wire size	0.75 mm^2, 50m max.

6 SYSTEM CONNECTION DIAGRAM

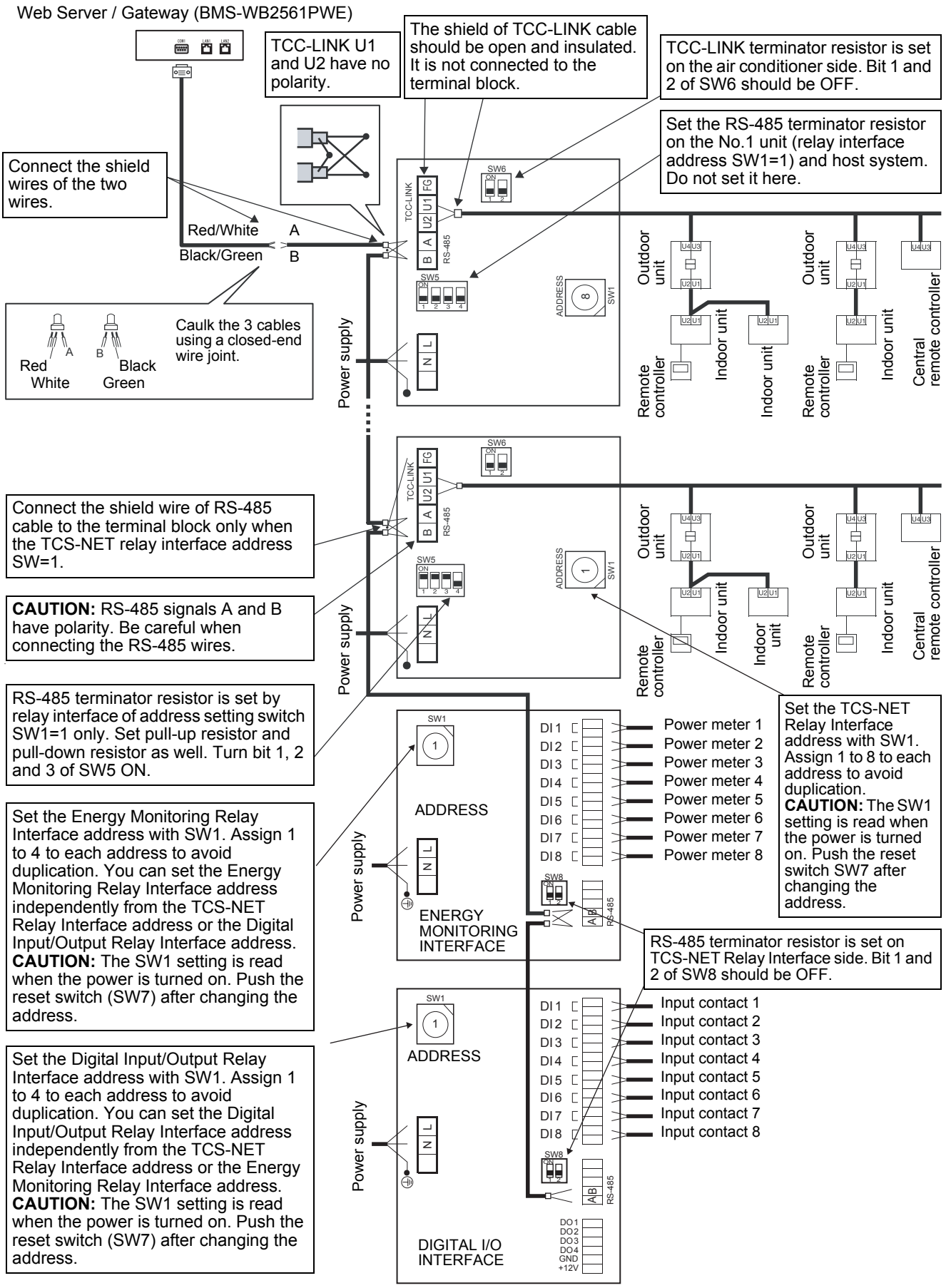
6-1. Web Server System (In case of connecting 256 FCUs or less)



6-2. Master Server System (In case of connecting 257 FCUs or more)



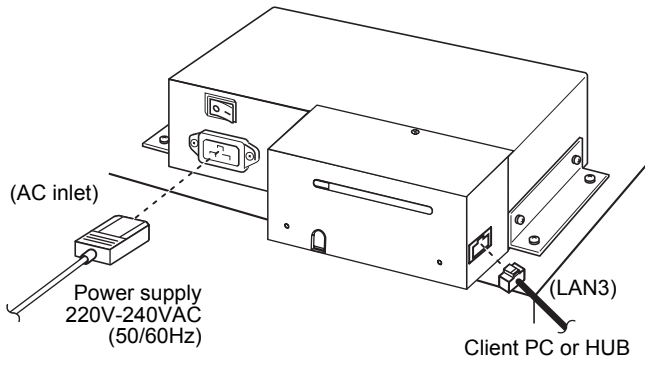
6-3. Connections with Interfaces


Web Server / Gateway (BMS-WB2561PWE)
TCC-LINK U1 and U2 have no polarity.
The shield of TCC-LINK cable should be open and insulated. It is not connected to the terminal block.
TCC-LINK terminator resistor is set on the air conditioner side. Bit 1 and 2 of SW6 should be OFF.
Set the RS-485 terminator resistor on the No.1 unit (relay interface address SW1=1) and host system. Do not set it here.
Connect the shield wires of the two wires.
Red/White
Black/Green
A
B
Caulk the 3 cables using a closed-end wire joint.
Red
White
Black
Green
Power supply
TCC-LINK
RS-485
SW6
SW5
SW1
ADDRESS
Outdoor unit
Indoor unit
Remote controller
Central remote controller
Connect the shield wire of RS-485 cable to the terminal block only when the TCS-NET relay interface address SW=1.
CAUTION: RS-485 signals A and B have polarity. Be careful when connecting the RS-485 wires.
RS-485 terminator resistor is set by relay interface of address setting switch SW1=1 only. Set pull-up resistor and pull-down resistor as well. Turn bit 1, 2 and 3 of SW5 ON.
Set the Energy Monitoring Relay Interface address with SW1. Assign 1 to 4 to each address to avoid duplication. You can set the Energy Monitoring Relay Interface address independently from the TCS-NET Relay Interface address or the Digital Input/Output Relay Interface address.
CAUTION: The SW1 setting is read when the power is turned on. Push the reset switch (SW7) after changing the address.
Set the Digital Input/Output Relay Interface address with SW1. Assign 1 to 4 to each address to avoid duplication. You can set the Digital Input/Output Relay Interface address independently from the TCS-NET Relay Interface address or the Energy Monitoring Relay Interface address.
CAUTION: The SW1 setting is read when the power is turned on. Push the reset switch (SW7) after changing the address.
Set the TCS-NET Relay Interface address with SW1. Assign 1 to 8 to each address to avoid duplication.
CAUTION: The SW1 setting is read when the power is turned on. Push the reset switch SW7 after changing the address.
RS-485 terminator resistor is set on TCS-NET Relay Interface side. Bit 1 and 2 of SW8 should be OFF.
DI 1
DI 2
DI 3
DI 4
DI 5
DI 6
DI 7
DI 8
Power meter 1
Power meter 2
Power meter 3
Power meter 4
Power meter 5
Power meter 6
Power meter 7
Power meter 8
ENERGY MONITORING INTERFACE
Input contact 1
Input contact 2
Input contact 3
Input contact 4
Input contact 5
Input contact 6
Input contact 7
Input contact 8
DIGITAL I/O INTERFACE
DO 1
DO 2
DO 3
DO 4
GND
+12V

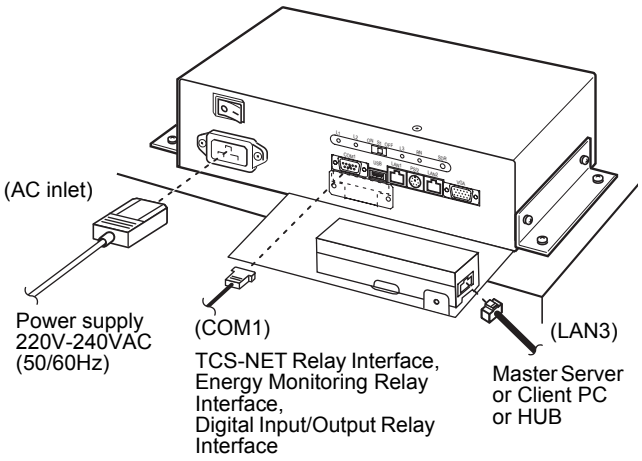
7 PRODUCT CONNECTION DIAGRAM

7-1. Master Server/Web Server/Gateway

Master Server



Web Server/Gateway



■ AC Power Cable Connection

REQUIREMENT

Power cable is not supplied for the Server. Insert a three core power cord applicable to the standard of the country you use. Be sure to connect the earth line of the power cable securely.

- Insert an AC power cable into the AC inlet.
- Connect the power cord plug to an outlet (220 V - 240 V, AC).

REQUIREMENT

- Disconnect the appliance from the main power supply. Connect this appliance to the main power supply by a circuit breaker or a switch with a contact separation of at least 3mm.
- Make sure that the outlet is earthed.

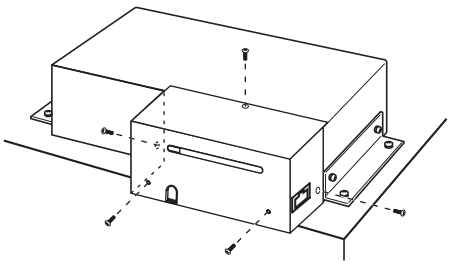
■ Ethernet Cable Connection

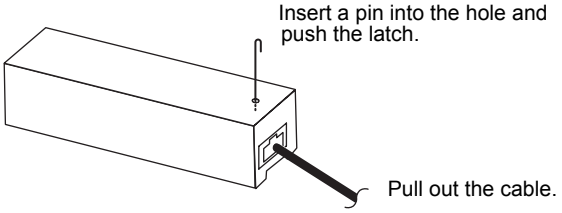
- Insert the Ethernet cable into the Ethernet port3 (LAN3).

NOTE

Disconnecting the Ethernet cable.

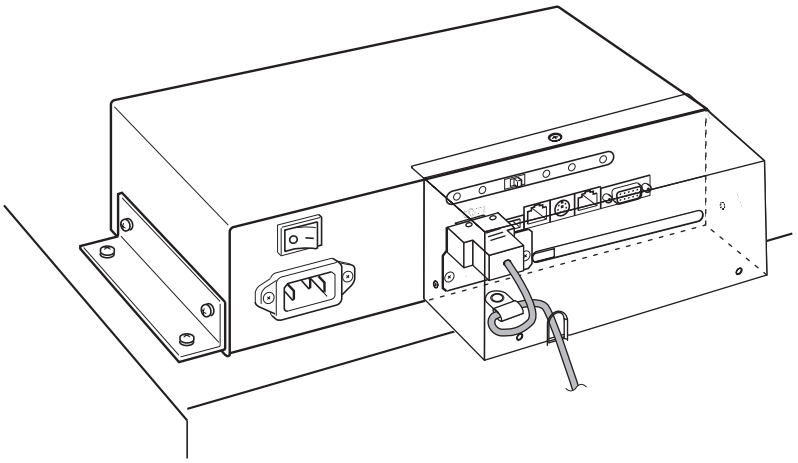
- Remove the metal plate cover.
- Insert a pin into the cable separation hole of the Hyper Isolation Transformer HIT-100.
- Remove the cable slowly.





■ Serial Port (RS-485) Connection

- Confirm that the power supply for the server is shut off.
- RS-485 cable is connected to Serial port 1 (COM1) of the Web Server/Gateway as factory default.

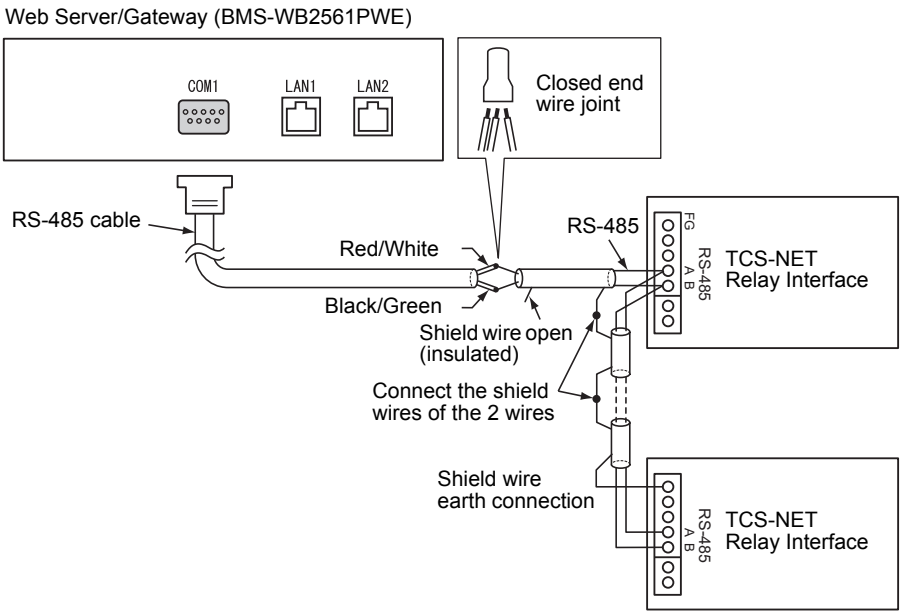


Connection to the TCS-NET Relay Interface

- TxRx(+) Connection
  Connect three wires of RS-485 wire (red wire/white wire/wire from the terminal board RS-485 A of the TCS-NET Relay Interface) together with the closed end wire joint.
- TxRx(-) Connection
  Connect three wires of RS-485 wire (black wire/green wire/wire from the terminal board RS-485 B of the TCS-NET Relay Interface) together with the closed end wire joint.

REQUIREMENT

- Put the closed end wire joint into the piping or the wall. Do not expose the closed end wire joint.

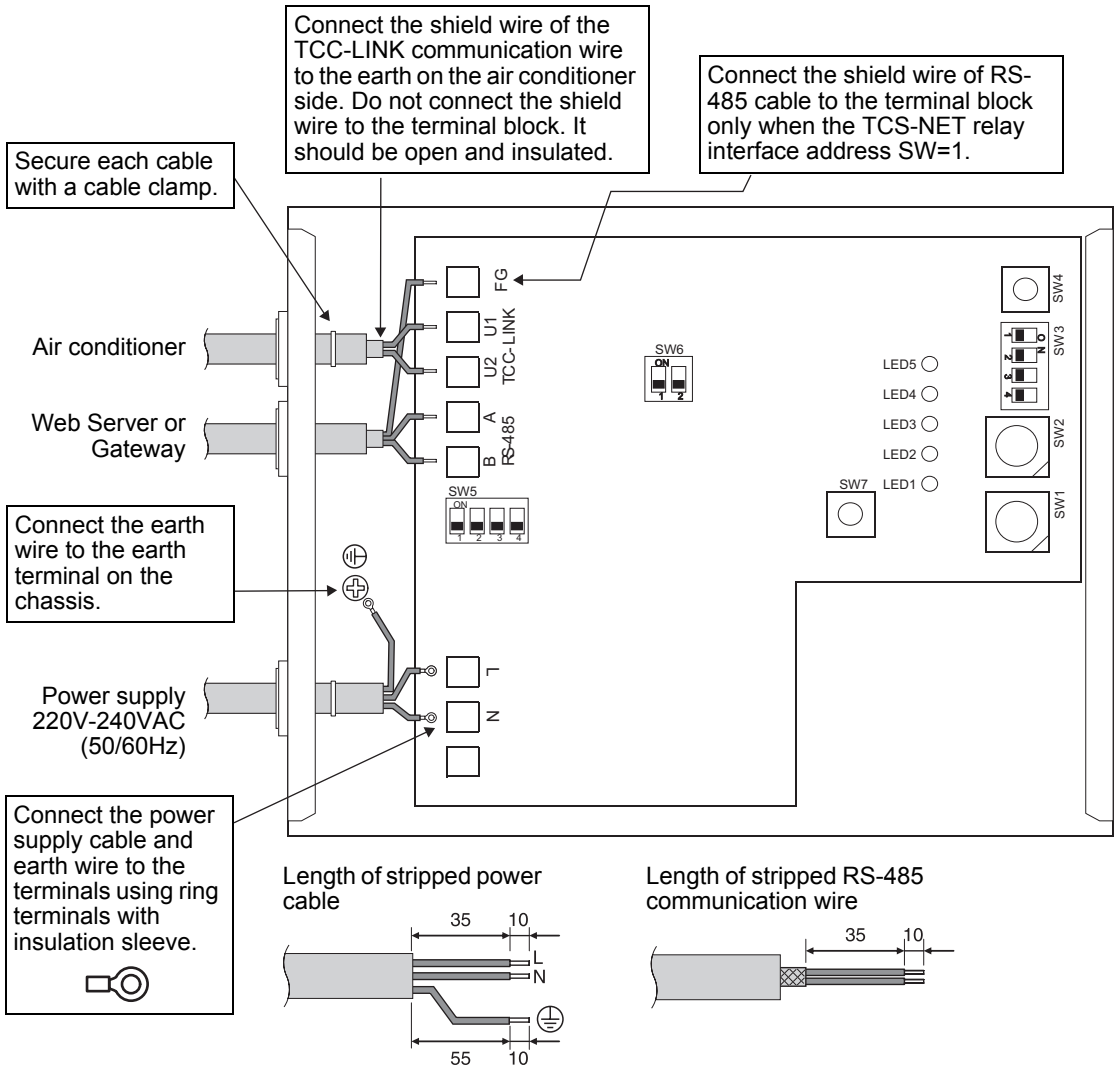


NOTE

The RS-485 signal wire has polarity.
If connected with incorrect polarity, the unit will not work.
Do not connect or disconnect the wire during control operation.
Doing so may cause a malfunction.

7-2. TCS-NET Relay Interface (BMS-IFLSV3E)

Connect power cables, earth wires, and signal wires to the specified terminals on the terminal block.

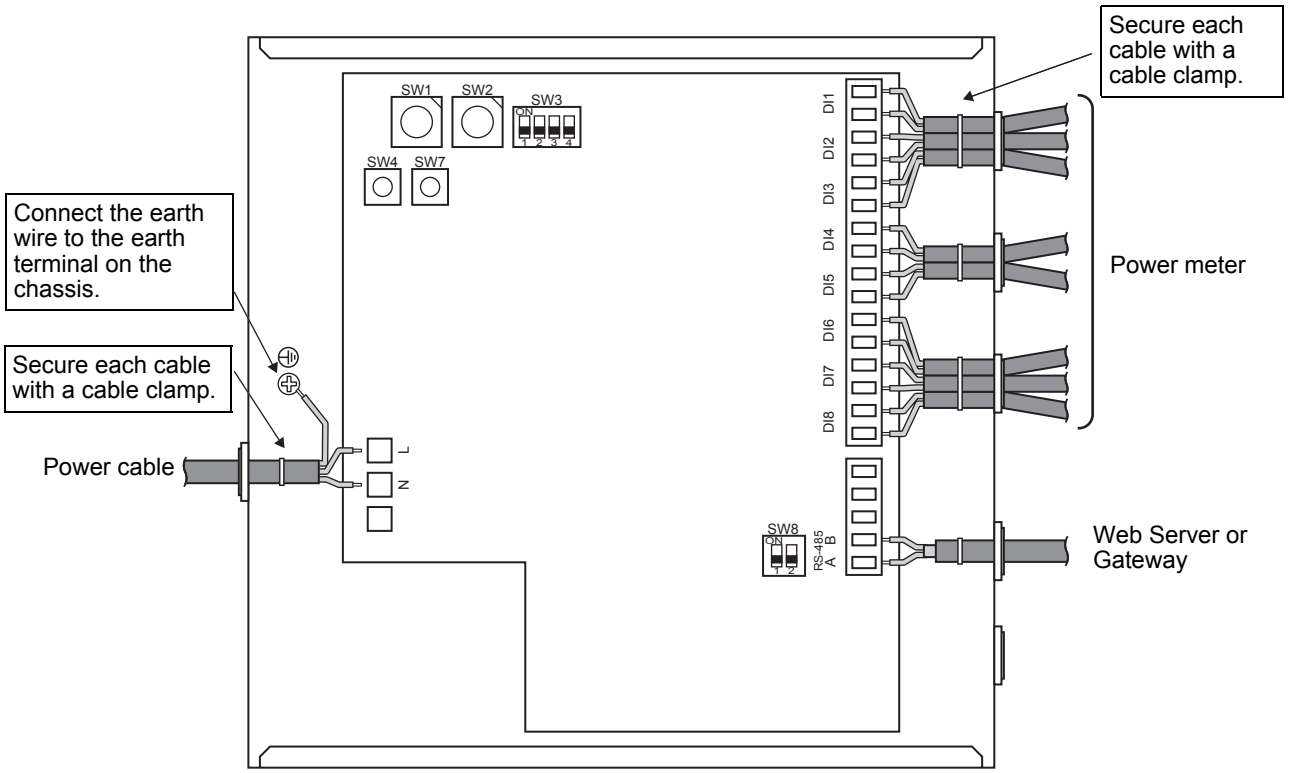

Connect the shield wire of the TCC-LINK communication wire to the earth on the air conditioner side. Do not connect the shield wire to the terminal block. It should be open and insulated.
Connect the shield wire of RS-485 cable to the terminal block only when the TCS-NET relay interface address SW=1.
Secure each cable with a cable clamp.
Air conditioner
Web Server or Gateway
Connect the earth wire to the earth terminal on the chassis.
Power supply 220V-240VAC (50/60Hz)
Connect the power supply cable and earth wire to the terminals using ring terminals with insulation sleeve.
FG
U1
U2
TCC-LINK
A
B
RS-485
L
N
SW5
SW6
SW7
LED5
LED4
LED3
LED2
LED1
SW4
SW3
SW2
SW1

Length of stripped power cable

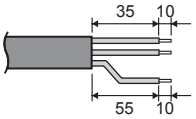
Length of stripped RS-485 communication wire

7-3. Energy Monitoring Relay Interface (BMS-IFWH4E2)

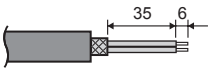
Connect power cables, earth wires, and signal wires to the specified terminals on the terminal block.



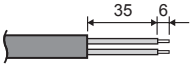
Length of stripped power cable



Length of stripped communication wire



Length of stripped power meter wire

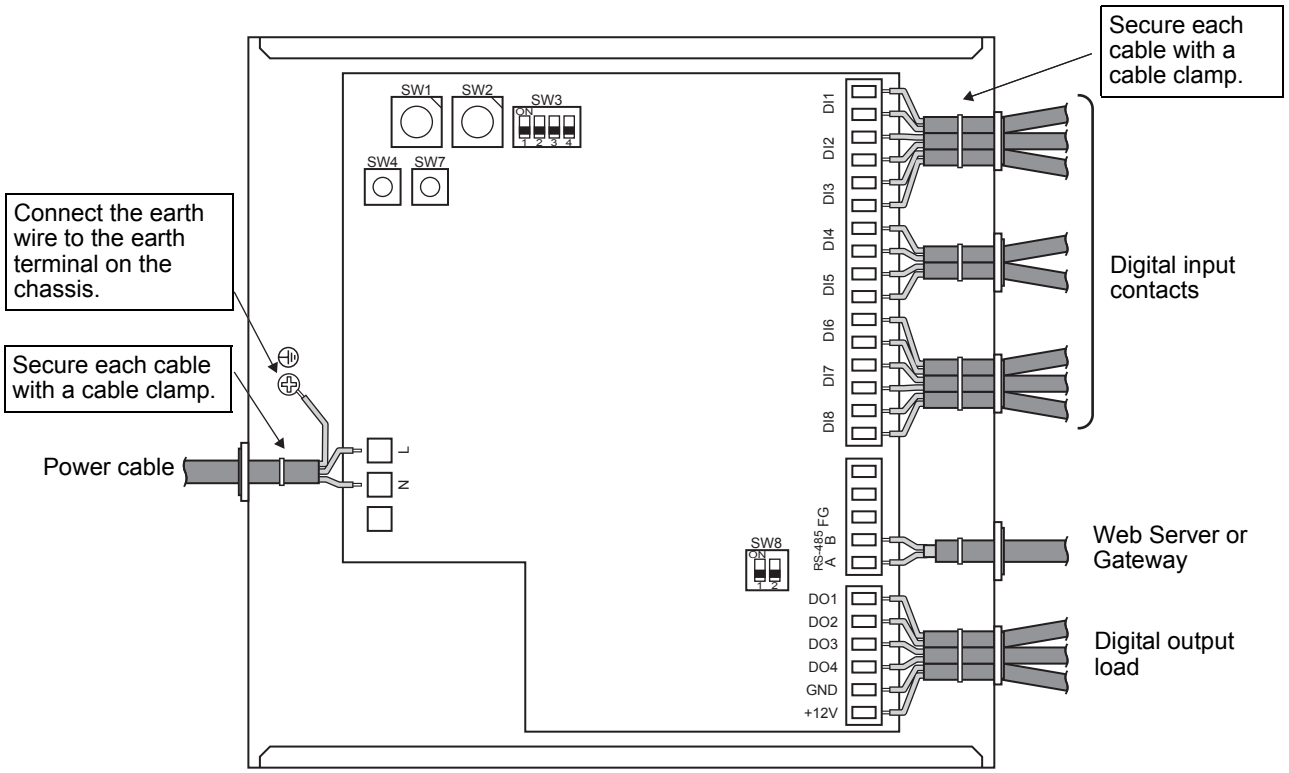


Insert the wire by pushing the lever with a screwdriver. Check that the wire is inserted securely.

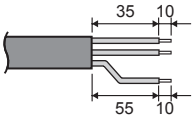
When inserting two RS-485 communication wires into a single terminal for connection to another interface, crimp them using the attached pin terminal.

7-4. Digital Input/Output Relay Interface (BMS-IFDD02E2)

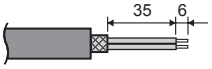
Connect power cables, earth wires, and signal wires to the specified terminals on the terminal block.



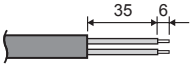
Length of stripped power cable



Length of stripped communication wire



Length of stripped digital Input/Output connector wire



Insert the wire by pushing the lever with a screwdriver. Check that the wire is inserted securely.

When inserting two RS-485 communication cables into a single terminal for connection to another interface, crimp them using the attached pin terminal.

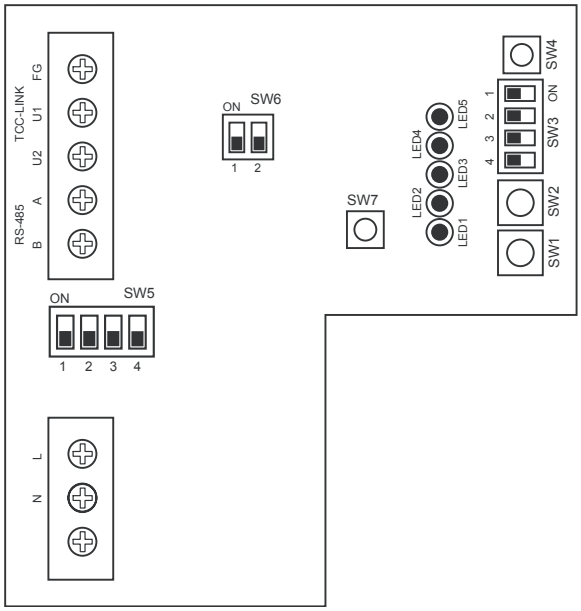
8 SETTING

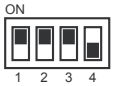
Configure the switch settings for each interface.

8-1. TCS-NET Relay Interface (BMS-IFLSV3E)

The following settings are necessary to use TCS-NET Relay Interface.

Address setting	SW1 TCS-NET Relay Interface address set switch When two or more TCS-NET Relay Interface are used, set a different address for SW1 to avoid address duplication.
RS-485 terminator resistor setting RS-485 pull-up/pull-down resistor setting	SW5 RS-485 terminator resistor select switch Set “Resistor set (120 ohm)” only when the relay interface address SW=1, and set “open” for other relay interfaces. Set pull-up resistor and pull-down resistor as well. Turn bit 1, 2 and 3 of SW5 ON.

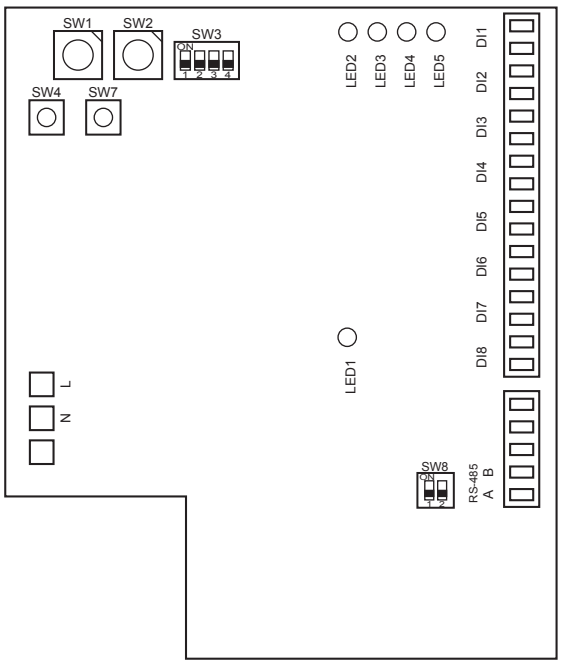


SW1	Relay interface address set switch		
	1-8	Relay interface address	
	0, 9-F	Not used	
SW2	Test switch (0 usually)		
SW3	Test switch (all OFF usually)		
SW4	Test switch		
SW5	RS-485 terminator resistor select switch		
			Bit1: pull-up resistor select. Bit2: pull-down resistor select. Bit3: terminator resistor select. Bit4: terminator resistor select.
	Resistor Set	Open	
SW6	TCC-LINK terminator resistor select switch		
			Note:Bit 1 is not used.
	100 ohm	Open	
SW7	Reset switch		
LED1	Power indicator		
LED2	RS-485 communication status indicator		
LED3	TCC-LINK Communication status indicator		
LED4	TCC-LINK Communication error indicator		
LED5	Test indicator		

8-2. Energy Monitoring Relay Interface (BMS-IFWH4E2)

The following settings are necessary to use Energy Monitoring Relay Interfaces.

Address setting	SW1 Address set switch When two or more Energy Monitoring Relay Interfaces are used, set a different address for each unit to avoid address duplication.
RS-485 terminator resistor setting	RS-485 terminator resistor is set on the TCS-NET relay interface. Set SW8 as "open" on an energy monitoring relay interface.

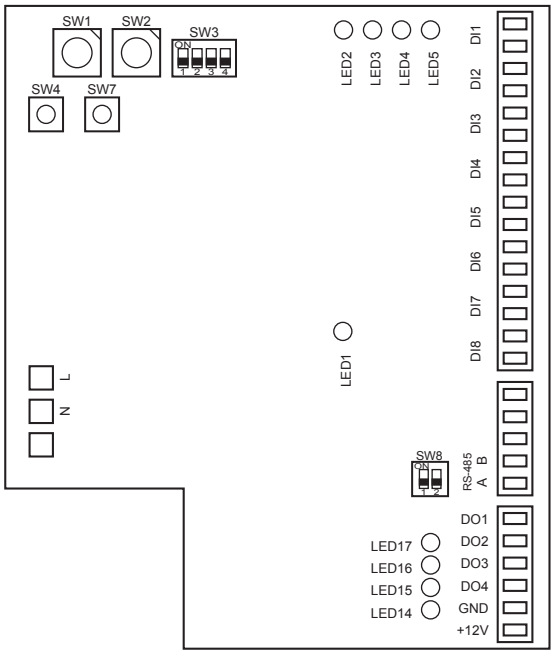


SW1	Address set switch		
	1-4	Address	
	0, 5-F	Not used	
SW2	Operating mode set switch (0 usually)		
SW3	Test switch (all OFF usually)		
SW4	Test switch		
SW7	Reset switch		
SW8	RS-485 terminator resistor select switch		
			Note:Bit 2 is not used.
	120 ohm	Open	
LED1	Power indicator		
LED2	RS-485 communication status indicator		
LED3	Not used		
LED4	Test indicator		
LED5	Test indicator		

8-3. Digital Input/Output Relay Interface (BMS-IFDD02E2)

The following settings are necessary to use Digital Input/Output Relay Interfaces.

Address setting	SW1 Address set switch When two or more Digital Input/Output Relay Interfaces are used, set a different address for each unit to avoid address duplication.
RS-485 terminator resistor setting	RS-485 terminator resistor is set on the TCS-NET relay interface. Set SW8 as "open" on a digital input/output relay interface.



SW1	Address set switch		
	1-4	Address	
	0, 5-F	Not used	
SW2	Operating mode set switch (0 usually)		
SW3	Test switch (all OFF usually)		
SW4	Test switch		
SW7	Reset switch		
SW8	RS-485 terminator resistor select switch		
			Note:Bit 2 is not used.
	120 ohm	Open	
LED1	Power indicator		
LED2	RS-485 communication status indicator		
LED3	Not used		
LED4	Test indicator		
LED5	Test indicator		
LED14 -LED17	Digital output indicator		

9 TRIAL OPERATION

Follow the procedures below to start the system and perform operation check.

9-1. Preparation

No.	Item	Details		Procedure
1	Preparation	Discuss with the client to complete the following matters: • Selection of products and the creation of the system diagram • Determination of addresses for air conditioners and interfaces; Creation of address management table • Determination of IP addresses for Web Server, Master Server and Gateway • Creation of settings file using Setting File Creation Software • In case of using a warning email, preparation of email account, password, address, etc. for SMTP server		See the Owner's manual for the Setting File Creation Software.
2	Product installation	Install the Web Server, Master Server, Gateway and interfaces.		See "Installation" of this document. For details, refer to the installation manual of each product.
3	Wiring	Connect the power cable, ground wire, signal wires and other necessary cables to the Web Server, Master Server, Gateway and interfaces.		See "Product Connection diagram" of this document. For details, refer to the installation manual of each product.
4	Product configuration	Configure the settings of the air conditioners and interfaces.		Set the addresses of each product according to the address management table. See "Setting" of this document. For details, refer to the installation manual of each product.
		1) Air conditioner	Address setting	
		2) TCS-NET Relay Interface	Address setting	
			Set the RS-485 terminator resistor and the pull-up/pull-down resistor	
		3) Energy Monitoring Relay Interface	Address setting	
		4) Digital Input/Output Relay Interface	Address setting	
5	Uploading of settings file and IP addresses	1) Upload the settings file. • When using the Web Server System Upload the settings file to the Web Server. • When using the Master Server System Upload the settings file to the Master Server.		For details, see the instruction manual for the Setting File Creation Software.
		2) After making the changes, reboot the Server and Gateway.		
6	Configuration of client PC	Configure the network settings and browser settings for the client PC.		For details, see the Web Based Controller Installation Manual.

9-2. Operation Check

Complete the trial operation of air conditioners before operation check.

No.	Item	Details		Procedure
1	Start-up check	Check the LED displays after turning on the Master Server, Web Server, Gateway and interfaces.		For details, refer to the installation manual of each product.
		Master Server	L1, L2 (Red) light-up RN (Green) light-up	
		Web Server/Gateway	L1, L2 (Red) blinking RN (Green) light-up	
		TCS-NET Relay I/F	LED1 (Red) light-up	
			LED2 (Green) blinking	
			LED3 (Orange) blinking	
		Energy Monitoring Relay I/F	LED1 (Red) light-up	
			LED2 (Green) blinking	
		Digital Input/Output Relay I/F	LED1 (Red) light-up	
			LED2 (Green) blinking	
2	Power meter input check	Power meter pulse input check		
3	Fire alarm check	Fire alarm signal input check; locking signal input check		
4	Logon	Access the Master Server or Web Server from the client PC browser and display the logon screen.		For details, see the Web Based Controller Installation Manual.
		Enter the user name and password on the logon screen, and log on to the system. Factory default setting: User name (TCC), Password (TCCTCC). (*) You cannot log on immediately after start-up. Wait 20 minutes and then enter the user name and password to log on.		For details, see the Web Based Controller Instruction Manual.
5	Air conditioner settings change check	Start/Stop the air conditioners from the client PC and check that the air conditioners start/stop accordingly.		
6	Air conditioner status display check	Change settings from the remote controller and check that the status is correctly displayed on the client PC monitor screen.		

9-3. Operation Settings

The following items must be set for operation:

No.	Item	Details	Procedure
1	Operation settings	1) Date/Time setting	For details, see the Web Based Controller Instruction Manual.
		2) User account creation	
		3) Summer time setting	
		4) Alarm E-mail setting	
		5) Master schedule and billing schedule settings	
		6) BackUp software setting	For details, see BackUp software installation manual.
		7) Data initialization Trial operation data is cleared before handing the product over to the customer.	See initialization tool Owner's manual.

10 TROUBLESHOOTING

10-1. Installation Troubleshooting

10-1-1. Cannot change IP address.

Cause 1: The Master Server (Web Server) is not turned on.
Action: Make sure that the RN LED light on the Master Server (Web Server) is on.
Turn on power to the Master Server (Web Server).
Check that the power has a voltage of 220V~240V.

Cause 2: PC is not connected to LAN2.
Action: Connect a PC to LAN2.
Check that the LED of the LAN connecter is lit.

10-1-2. Cannot upload settings file.

Cause 1: System is not in Maintenance mode.
Action: Switch to Maintenance mode and try uploading the settings file.

Troubleshooting: See Action 10-1-1., Cause 1 and 2.

10-1-3. Logon screen is not displayed.

Cause 1: CF card is not inserted in the CF card slot.
Action: Insert a CF card in the CF card slot.

Cause 2: The Master Server (Web Server) is not turned on.
Action: Make sure that the RN LED light on the Master Server (Web Server) is on.
Turn on power to the Master Server (Web Server).
Check that the power has a voltage of 220V~240V.

Cause 3: Hub and/or router is not turned on.
Action: Turn on the power to the hub and/or router.

Cause 4: LAN cable is not connected.
Action: Connect a LAN cable to LAN3.
Make sure that the Master Server (Web Server) and the PC are connected by a LAN cable through a hub or other connecting products.

Cause 5: Incorrect URL entered in the browser software.
Action: Check to see if the URL entered is: [http:// ***.***.***.*** (IP address for Master Server (Web Server)): 8080/AirCon5/jsp/logon.jsp].

Cause 6: Proxy server is set to be used.
Action: From the proxy server setting in the browser software, add the IP address of the Master Server (Web Server) to the addresses that do not use the proxy server.

Cause 7: LAN cable is defective.
Action: If the LED for the LAN connector does not turn on, the LAN cable may be defective. Replace the LAN cable and check again.

Cause 8: Master Server (Web Server) froze up.
Action: Press the SDR switch and after the LED for the LAN connector is off, turn the power to Master Server (Web Server) off. Turn the Master Server (Web Server) back on and access from the browser again after 10 minutes.

Cause 9: PC is not functioning properly.
Action: 1) Restart the PC and check again.
2) Replace the PC and check again.

Cause 10: Master Server (Web Server) is not functioning properly.
Action: Check that the L1, L2 and RN LEDs for the Master Server (Web Server) LAN connector are lit.
* If all LEDs are off, the Master Server may be at fault.

10-1-4. Message “The system is being prepared” is displayed and cannot log on.

Cause 1: Gateway (Web Server) is in the process of starting up.
Action: Log on after 10 minutes.

Cause 2: System is in Maintenance mode.
Action: Cancel Maintenance mode and log on again.

Troubleshooting: See 10-2-2..

10-1-5. Cannot log on.

Cause 1: User name or password is incorrect.
Action: “Failed to logon” is displayed. Enter the correct user name and password.

Cause 2: Gateway (Web Server) froze up.
Action: Press the SDR switch and after the LED for the LAN connector is off, turn the power to Gateway (Web Server) off. Turn the Gateway (Web Server) back on and access from the browser again after 20 minutes.

Cause 3: Data in database is corrupt.
Action:Initialize the settings file. See the Setting File Creation Software instruction manual.

10-1-6. Communication error or some part of the air conditioner data cannot be obtained.

Cause 1: Air conditioner model is incorrect.
Action: Confirm that the model of the setting file and the actual air conditioner match.

10-2. Warning Display

10-2-1. Browser shows a Alarm code other than [S10], [S01], [S02], [S06] or [S07].

Cause 1: The warning is detected at the air conditioner.
Action: 1) Check the inspection display on the remote controller or multi-outdoor unit board.
2) Follow the service guide of the air conditioner to identify the fault and check the parts and wiring.

10-2-2. Gateway (Web Server) communication error [S10] is displayed.

Cause 1: The product is not turned on. (Gateway, relay interface, hub, router)
Action: Check that the RN LED light for the Gateway is on.
Also check for LED for POWER to the relay interface.
Turn on the power to each product.
Make sure that the power to Gateway and relay interface is 220V~240V.

Cause 2: LAN cable is connected to LAN2 of GW Server.
Action: LAN2 is for maintenance use. Connect to LAN3.

Cause 3: Type of LAN cable is not appropriate.
Action: Check the type of the LAN cable connected to each product (Straight cable or crossover cable).

Cause 4: The LED for Gateway LAN connector is off.
Action:LAN cable may be defective. Replace the LAN cable.

Cause 5: IP address is incorrect.
- The IP address for the Gateway (Web Server) is incorrect.
- Unicast destination of the Gateway (Web Server) is not the Master Server (Web Server).
- The IP address for the Gateway (Web Server) in the database is incorrect.

Action: Check the IP address and configure the settings again. See the Setting File Creation Software instruction manual.

Cause 6: Terminator resistor, RS-485-side pull-up and pull-down are not correctly set.
Action: Set the RS-485-side (SW5) of the relay interface correctly.

Cause 7: RS-485 cable is not connected to COM1 of Gateway (Web Server).
Cause 8: RS-485 cable is disconnected.
Action: Check the connection state of the cable.

Cause 9: All polarities for RS-485 are incorrect.
Action: Check the terminal block of each relay interface and the wiring.
Make sure that the red and white wires and the black and green wires are paired.

Cause 10: All address and switch settings for relay interfaces are incorrect.
Action: Check if the addresses on the settings file and those of the relay interfaces match.
Make sure that SW2 of the relay interface is “0” and SW3 is OFF.

Cause 11: Web Server has not been changed to Gateway.
Action: Change Web Server to Gateway. Follow the instructions in the Setting File Creation Software instruction manual.

Cause 12: The RS-485 transmission circuit of the Gateway (Web Server) or the interfaces does not work properly.
Action: 1: Check for blinking of LED (Green) for RS-485 of relay interface.
- If not blinking, the RS-485 transmission circuit for the Gateway (Web Server) and the RS-485 reception circuit for the interface are defective.

2: Check the RS-485 transmission circuit for Gateway (Web Server).
- Check for communication wave output between A and B of the RS-485 cable.
- If there is no communication wave output, the RS-485 transmission circuit for the Gateway (Web Server) is defective. Replace the Gateway (Web Server).

3: Check the RS-485 transmission circuit for relay interface.
- Run Test mode 1 (Restart with SW2=1) with the relay interface and check for communication wave output between RS-485 terminal block A and B of the relay interface.
- If there is no communication wave output, the RS-485 transmission circuit for relay interface is defective. Replace the relay interface.

Cause 13: Wiring length is too long or wire diameter is too small.
Action: Replace with a communication cable with the specified length and diameter.

Cause 14: Superimposed noise found in communication cable.
Action: Check the waveform between the RS-485 communication cable A and B.
If there is noise superimposition, identify the source of noise and remove it.

* A synchroscope is needed for Cause 12 and 14.

10-2-3. Air condition communication error [S01] is displayed.

Cause 1: Product is not turned on. (Relay interface, air conditioner, multi-outdoor unit)
Action: Check that the POWER LED for the relay interface is on.
Check the power for air conditioners and outdoor units.
Turn the power on.
Make sure that the power has a voltage of 220V~240V.

Cause 2: Terminator resistor, RS-485-side pull-up and pull-down are not correctly set.
Action: Set the RS-485-side (SW5) and the TCC-LINK-side (SW6) of the relay interface correctly.
Set the terminator resistor of the air conditioner-side correctly.

Cause 3: Incorrect RS-485 polarity.
Action: Check the terminal block of each relay interface and the wiring.
Make sure that the red and white wires and the black and green wires are paired.

Cause 4: The address and switch settings for the relay interface are incorrect.
Action: Check if the addresses on the settings file and those of the relay interfaces match.
Make sure that SW2 of the relay interface is “0” and SW3 is OFF.

Cause 5: Address on the settings file and air conditioner address do not match.
Action: Check for consistency of the addresses. The air conditioner address can be checked from the remote controller.

Cause 6: Wire is not connected to the TCC-LINK terminal block of relay interface.
Cause 7: Wire is not connected to the TCC-LINK terminal block of indoor units.
Cause 8: Relay connector between U1U2 and U3U4 terminals of the center equipment of a multi-outdoor unit is not connected.
Cause 9: Wire connection of the relay interface and air conditioner is incorrect.
Action: Check the connection state.

Cause 10: TCC-LINK cable is disconnected.
Action: Check the conduction of the TCC-LINK cable.

Troubleshooting: See 10-2-2.. Cause 12, 13 and 14.

10-2-4. Relay interface communication error [S02] is displayed.

Cause 1: Power down or communication was lost from the relay interface after start-up.
Action: See 10-2-2.. Cause 1, 6, 7, 8, 9, 12, 13 and 14.

10-2-5. Energy Monitoring Relay interface communication error [S06] is displayed

Cause 1: The Energy Monitoring Relay meter interface is turned off.
Action: Check that the POWER LED for the Energy Monitoring Relay interface is on.
Make sure that the power has a voltage of 220V~240V.

Troubleshooting: See 10-2-2.. Cause 12-14, 10-2-3.. Cause 3 and 4.

10-2-6. Digital I/O interface communication error [S07] is displayed.

Cause 1: Digital I/O interface is not turned on.
Action: Check that the POWER LED for the Digital I/O interface is on.
Make sure that the power has a voltage of 220V~240V.

Troubleshooting: See 10-2-2.. Cause 12-14, 10-2-3.. Cause 3 and 4.

10-3. Troubleshooting for Web screen problems

10-3-1. It takes too long for the display to show. (Screen does not change or takes too much time to change).

Cause 1: Heavy traffic on the network.
Action: 1) When connecting through an internal LAN, heavy traffic on the network may cause a slowdown of the display. Use during off-peak hours when there is less traffic or connect the PC and Master Server (Web Server) using an exclusive network.
2) If a 10-BASE hub is used, replace with a 100-BASE hub.

Cause 2: The processing of the PC is slow.
Action: When multiple applications are run at the same time, the processing speed of the PC may slow down. Close other applications and check again.

Cause 3: Browser-related cause
Action: The browsers supported are Internet Explorer 6.0 and 7.0. If other browsers are used, normal display is not guaranteed.This system does not suport Internet Explorer 8.0 nor other browsers. Please check with supported browsers.

Cause 4: Time-consuming processing is being performed.
Action: Performing operations listed on the following chart will cause display slowdown.

Operation	Max. response time
Create/Change master schedule	40 min.
Change operating schedule	4 min.
Create/Change billing schedule	4 min.
Alarm email setting	1 min.
User account setting	1 min.
Get status of air conditioners	10 min.

10-3-2. Returns to logon screen

Cause 1: Another user performed a certain operation.
Action: 1) Forced logoff on the “Logon User List” from the menu option.
2) Changed to Maintenance mode.
3) Changed the time.
Performing any of the above operations will cause the logon screen to be displayed.

Cause 2: No operation for more than one hour.
Action: Because there is a session timeout time, if no operation takes place for more than an hour, the display returns to logon screen.

10-3-3. Buttons are not displayed

Troubleshooting: See 10-3-1.. Cause 1-3.

10-3-4. Floor, tenant, area and air conditioner names are not correctly displayed

Cause 1: Data specified in the settings file is incorrect.
Action: Check the settings file and make corrections. Then upload the file to the Master Server (Web Server).

10-3-5. Operation status is not consistent with that shown on the remote controller

Cause 1: Address on the settings file and air conditioner address do not match.
Action: Check for consistency of the address in the settings file and that set to the air conditioner.
The address set to the air conditioner can be checked from the remote controller.

Cause 2: TCC-LINK connection is incorrect.
Action: Check the configuration in the settings file and the wire connection of the air conditioner.

10-3-6. Cannot log off.

Cause 1: No communication with Master Server (Web Server).
Action: Dialog box “No response from server” is displayed. When the dialog box is closed, the message “This page cannot be displayed” appears. Check for communication with the Master Server (Web Server). See 10-1-3..

10-3-7. Browser will not close.

Cause 1: No communication with Master Server (Web Server).
Action: It may take time for the browser to close. Please wait until the browser closes.

Cause 2: PC operation failure.
Action: 1) It may take time for the browser to close. Please wait until the browser closes.
2) If the browser does not close after waiting a while, exit the browser from the task manager.

10-3-8. “Exception error occurred” is displayed.

Cause 1: Master Server (Web Server) detected unexpected error.
Take the following actions in sequence untill the error display goes off.
Action: 1: Close the browser and reconnect.
2: Press the SDR switches of the Master Server (Web Server) and Gateway. Turn off power after LED of LAN connector goes off, and restart.
3: If there is backup data, perform restoration procedure.
4: Initialize settings file. See the Setting File Creation Software instruction manual.
5: CF card may be damaged. Replace CF card.

10-3-9. Date/Time display is incorrect.

Action: Set the current date and time on the “Clock and Calendar Setting” from the menu option..

10-3-10. Reference temperature value seems incorrect.

Cause 1: Reference temperature is the air inlet temperature adjusted for room temperature control of the air conditioner.
Action: Adjusting values are vary depending on the operation mode (cooling, heating), the reference temperature may differ from the actual room temperature.

10-4. Operation troubleshooting

10-4-1. System does not run as scheduled.

Cause 1: Product is not turned on.
Action: Turn on the power to all products.

Cause 2: Scheduled operation setting error.
Action: 1) Make sure that the operation schedule setting for each air conditioner is correct.
2) Check that the air conditioner set with operation schedule is the same as the target air conditioner.
3) Check that the date/time setting is correct.

Cause 3: Gateway (Web Server) froze up.
Action: See 10-1-5.. Cause 2.

10-4-2. Remote controller is inoperable.

Cause 1: Operation on the remote controller is prohibited
Action: Check on the browser if remote controller operation is set to “prohibited.” If so and if you wish to cancel the prohibition, change to “permitted” from the browser.

10-4-3. Operation settings for operations such as start/stop of air conditioners cannot be made from browser. Returns to previous state after time.

Cause 1: Communication with air conditioner is at fault.
Action: Check for detection of communication error with air conditioner. If there is communication error, see 10-2-3..

Cause 2: The indoor unit is set as a sub unit.
Action: Change the setting so that the main unit settings of the air conditioner and settings file match.

Cause 3: Operation setting for an operation beyond the set temperature range of the air conditioner or the operation mode range.
Action: If set to a value out of the range of the set temperature range, the set temperature will be the upper or lower limit of the set temperature range.
If set to a value out of the range of the operation mode range, the system will not operate under the set operation mode. The operation mode will stay at the operation mode before making the change.

10-4-4. Set temperature is changed automatically.

Cause 1: Set temperature or a return back function is set by a scheduled operation.
Action: Check the settings for scheduled operations.

Cause 2: Set temperature is changed from remote controller or another browser.
Action: Last operation is valid. Check if any changes were made from a remote controller or another browser.

10-4-5. “Operation standby” is displayed on remote controller and cannot turn on cooler or heater function.

Cause 1: Operation mode range selection is set.
Action: Check if “HEAT, FAN” or “COOL, DRY, FAN” is checked under the “Operation Mode Restriction” menu option.

10-4-6. Energy level calculation output by the Monthly Report Creation Software is incorrect.

Cause 1: Operating information on the air conditioner is not obtained by the Master Server (Web Server) due to a communication error.
Action: Check for detection of the communication error with air conditioner. If there is a communication error, see 10-2-3..

Cause 2: Energy level is not correctly obtained by the Master Server (Web Server).
Action: 1) Check if there is any communication error with the electricity meter interface.
2) Make sure that there is pulse input from the electricity meter to the electricity meter interface.

Cause 3: The room is more difficult to warm up or cool down compared to other rooms.
Action: This proportional electricity distribution system, calculates electricity level based on the performance necessary for air conditioning for each indoor unit. Rooms that are difficult to warm up or cool down use more electricity than other rooms regardless of the same operation time.

10-4-7. No daily report data.

Cause 1: Master Server (Web Server) was turned off at time of meter reading.
Action: If the Master Server (Web Server) is turned off at time of meter reading, the daily report file for that day is not created. Accumulated operating time and electricity amount are added to the daily report file for the following day, so the values for the unreported daily report are correctly calculated in the daily report summary.

10-4-8. No Monthly report data.

Cause 1: Master Server (Web Server) was turned off at time of meter reading.
Action: IIf the Master Server (Web Server) is turned off at time of meter reading, the monthly report file for that month is not created. Accumulated operating time and electricity amount are added to the monthly report file for the following month, so the values for the unreported monthly report are correctly calculated in the monthly report summary.

10-4-9. Air conditioner does not stop with lock input.

10-4-10. Air conditioner does not stop with fire alarm input.

10-4-11. Air conditioner remains inoperable after cancellation of fire alarm input.

Cause 1: Communication error in the digital I/O interface.
Cause 2: Communication error in the air conditioner.
Cause 3: Communication error in the GW Server (Web Server).
Cause 4: Communication error in the Master Server (Web Server).
Action: See 10-2..

Cause 5: Error in settings file entry.

Action: Check the indoor unit air conditioning settings sheet in the settings file to see if the lock input name is correctly set.

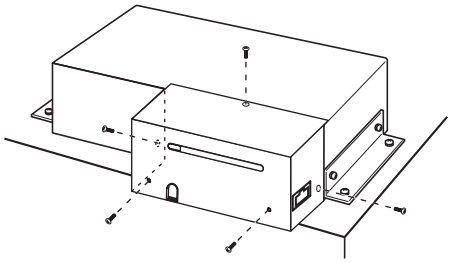
10-4-12. Frost protection setup status is not displayed on the screen.

Action: When frost protection is set with the remote controller, the setup status will be "heat 18 ºC" on the client PC screen. However, frost protection control is actually working on the air conditioner. There is no problem for the operation.

11 APPENDIX

11-1. Installing and Removing the CF Card

Remove the metal plate cover.
The CF card slot is found on the front side of the unit.
Remove the two screws on the plate to show the slot.

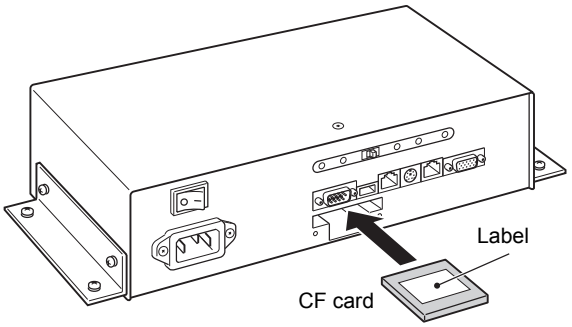


Installation

Insert the CF card in the CF card slot with its labeled surface facing up.
Make sure the CF card is pushed in completely.

Removal

Insert your finger in the downside of the CF card slot and press the CF card upwards. Pull out the CF card.



11-2. Data Backup and Restoration

Data on the Master Server or Web Server can be backed up using the BackUp software provided with the product. Even in case of data destruction, by restoring the backed up data to the server, the system can be restored to the point of data backup.
A periodical data backup is recommended.

Data backup

Data backups are performed on a PC that has the BackUp software installed.
The software program automatically backs up data to PC in accordance with the set time. (PC needs to be turned on)
For instructions on how to install the software and how to take data backups, see the BackUp software Owner's manual.

Data restoration

The user can restore backed up data to the Master Server or Web Server to restore the system.
For restoration procedures, see the BackUp software Owner's manual.

11-3. Creating Daily and Monthly Reports

Use the Monthly Report Creation Software to calculate and report the amount of electricity used and cumulative operating time for each air conditioner.
For details, see the Monthly Report Creation Software Owner's manual.

11-4. Initialization

Using the initialization tool allows the user to restore the factory default setting.
For details, see the initialization tool Owner's manual.

11-5. Address Management Table

Enter addresses, product models, floor and tenant names on the address management table in accordance with the decisions made in discussions with the client. Use the Setting File Creation Software to create a settings file.

Indoor unit 256 or less

	IP Address	Subnet Mask	Default Gateway
WEB Server			

Indoor unit 257 or more

	IP Address	Subnet Mask	Default Gateway
Master Server			
Gateway1			
Gateway2			
Gateway3			
Gateway4			
Gateway5			
Gateway6			
Gateway7			
Gateway8			

Building Name	Toshiba Building

No	Air Conditioner List			Master Server / WEB Server IP Address	Address Information						Display Name		
	Outdoor Refrigerant System	Outdoor unit Model Name	Indoor Unit Model Name		TCC-LINK Line No	Line Address	Indoor Unit Address	Group Address	Group Relation	Central Control Address	Floor Name	Tenant Name	Area Name
1	SYS-1	MMY-AP1401HT8	MMU-AP0181H	192.168.2.5	1	1	1	0	0	1	1F	TenantA	ShopA
2			MMU-AP0091H				2	1	0	2			
3			MMU-AP0181H				3	2	2	2			
4			MMU-AP0091H				4	2	2	2			
5			MMK-AP0091H				5	0	0	3		TenantB	ShopB
6			MMK-AP0181H				6	0	0	4			ShopC
7			MMK-AP0181H				7	0	0	5			ShopD
8			MMK-AP0181H				8	0	0	6			
9	SYS-2	MMYAP0801HT8	MMU-AP0181H			2	1	1	0	7	2F	TenantC	ShopE
10			MMU-AP0181H				2	2	9	7			
11			MMK-AP0181H				3	1	0	8			ShopF
12			MMK-AP0181H				4	2	11	8			
13	SYS-3	MMYAP1001HT8	MMU-AP0181H	192.168.2.6	2	1	1	0	0	9	3F	Office	CEO
14			MMU-AP0181H				2	0	0	10			
15			MMK-AP0181H				3	0	0	11			Development
16			MMK-AP0181H				4	1	0	12			
17			MMU-AP0181H				5	2	16	12			
18			MMU-AP0181H				6	2	16	12			
19			MMU-AP0181H				7	0	0	13			
20			MMU-AP0181H				8	0	0	14			

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